

# Adaptation strategies of agriculture to climatic changes

Kelly Bryan\*

Bryan K. Adaptation strategies of agriculture to climatic changes. J Plant Biol Agri Sci. 2021;3(3): 5.

## DESCRIPTION

Agriculture is a fundamental human activity at risk from climate change in coming decades. At the same time it will continue to be, a major agent of environmental and climate change at local, regional and planetary scales.

Agriculture operates within countless cultural, institutional and economic structures that define different climates, environmental conditions and management practices used.

There are correspondingly large adaptation options available to improve the resilience of agricultural systems to the uncertain future impacts of climate change. The argument to focus on adapting agriculture to climate change is based on several considerations.

- Past greenhouse gas emissions have forced the Earth to warm further by about 0.1 °C every decade for several decades, making unavoidable levels of impact and necessary adaptations or coping strategies.
- The major greenhouse gas emissions continue to grow rapidly. The lack of current progress in developing global emission reduction agreements beyond the Kyoto Protocol raises concerns about future emission levels.
- The upper limit of the IPCC scenario range for climate change has increased over time, meaning that potentially high global temperatures are likely to have a non-linear and increasingly negative impact on existing agricultural activities.
- Observed atmospheric CO<sub>2</sub> concentrations, global temperature, and sea level changes have reached the upper bounds of the values suggested by the IPCC scenario, and other specific effects of climate change are higher than previously thought.

It's happening faster than previously considered (such as collapse of the Greenland Ice Sheet).

• The potential impact of climate change on agriculture, especially in the tropics, has proven to be more significant than previously envisioned.

• Climate change can provide agricultural investment opportunities that reward those involved in early action.

Importantly, the collective adaption responses needed in the coming decades to limit the risks of climate change and maximize opportunities is a planned investment for the continued development of the relevant agricultural sector. It is to bring additional costs to society beyond. Much of this additional investment must be made in developing countries. Recent UNFCCC estimates conservatively these additional costs to be approximately US \$ 100 billion annually worldwide in 2030. This is expressed as the flow of additional investment and funding needed to minimize the risk of damage to the sectors associated with rural development in developing countries. These projected adjustment costs are small compared to current and projected global agricultural GDP, but represent a significant increase (10-20%) compared to projected domestic investment in these sectors, which must be noted. Moreover, they are much larger than the total amount of foreign direct investment, funding for development assistance, and debt financing for agricultural and rural development in developing countries (up to 5-10 times depending on the region).

## Following are the adaptation strategies for a selection of agricultural sectors

- In general, people who seek to improve the management of finite resources such as water, technical modifications based on reductionist analysis, engineering design principles, or computer-aided models.
- Altered system design and management (usually need changes in attitudes and/or behavior, referred to as attitudinal fixes).
- Decision-making tools (including the use of climate forecasting and information sources)
- Institutional changes.

Centre for Integrative Ecology (CIE), School of Life and Environmental Sciences, Deakin University, Burwood, Victoria, Australia

**Correspondence:** Kelly Bryan, Centre for Integrative Ecology (CIE), School of Life and Environmental Sciences, Deakin University, Burwood, Victoria, Australia, E-mail: Kelly.bryan89@yahoo.com

**Received date:** December 07, 2021; **Accepted date:** December 22, 2021; **Published date:** December 29, 2021



This open-access article is distributed under the terms of the Creative Commons Attribution Non-Commercial License (CC BY-NC) (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits reuse, distribution and reproduction of the article, provided that the original work is properly cited and the reuse is restricted to noncommercial purposes. For commercial reuse, contact [reprints@pulsus.com](mailto:reprints@pulsus.com)